Where adequate spacing is not available and a violation of the NESC would occur with the 2-bolt attachment method, use approved one-bolt attachment method for attaching messenger cable and guy assembly.

Bond guy assembly to new pole grounding system as described in Article 1720-3.

Do not attach to existing guy assemblies unless specifically approved by owner.

(B) Guy Assemblies for Communications Cable

When installing messenger cable for supporting only communications cable, use approved one-bolt attachment method for attaching messenger cable and guy assembly.

Bond guy assembly to existing pole ground using parallel groove clamp or equivalent. If existing poles do not have a grounding system, install new grounding system for bonding guy assembly that complies with Article 1720-3.

Do not attach to existing guy assemblies unless specifically approved by owner.

1721-4 MEASUREMENT AND PAYMENT

Guy Assembly will be measured and paid as the actual number of guy assemblies furnished, installed and accepted.

No measurement will be made of guy cable, guy guards, anchors, clamps, grounding systems or fittings as these will be incidental to furnishing and installing guy assemblies.

Payment will be made under:

Pay Item	Pay Unit
Guy Assembly	Each

SECTION 1722
RISER ASSEMBLIES

1722-1 DESCRIPTION

Furnish and install riser assemblies with clamp-on, aluminum weatherheads or heat shrink tubing, galvanized pole attachment fittings and all necessary hardware.

1722-2 MATERIAL

Refer to Division 10.

Item	Section
Grounding Electrodes	1091-6
Pole Line Hardware	1098-6
Rigid Metallic Conduit	1091-3
Riser Sealing Devices	1098-4
Wire	1091-2

Furnish material, equipment and hardware under this section that is pre-approved on the ITS and Signals QPL.

1722-3 CONSTRUCTION METHODS

Install risers with required weatherheads or heat shrink tubing on poles using pole attachment fittings. Maintain a 10" minimum and 18" maximum offset from signal messenger to the top of riser for all risers. On utility-owned poles, maintain a 40" offset from electrical utility's power conductors to top of riser and riser attachment fittings.

Use approved heat shrink tubing retrofit kits when installing new fiber-optic or coaxial cable into exiting risers that contain existing fiber-optic or coaxial cables.

Install heat shrink tubing retrofit kits in existing risers as specified.

Use separate 1/2" riser with weatherhead for pedestrian pushbutton.

Use separate 1" riser with weatherhead for electrical service.

Use separate 2" riser with weatherhead for signal cables (bundled). Use separate 2" riser with weatherhead for the combination of all lead-in and twisted-pair communications cable. Install condulet on all risers for lead-in cable.

Install condulets on risers for lead-in cable, railroad preempt interconnection cables and signal pedestals.

Use separate 2" riser with heat shrink tubing for fiber-optic communications cables and coaxial cable. Install risers with heat shrink tubing so that cable can be installed without violating its minimum bending radius. Install cable so it does not share a riser with any other cable.

Install heat shrink tubing in accordance with manufacturer's recommendations. Provide tubing a minimum of 5" in length with a minimum of 2.5" extended over cables and 2.5" extended over risers after heat has been applied. Use nylon filler rods with UV protection or equivalent and sealing spacer clips to separate cables where multiple cables enter a riser. Ensure sealing spacer clips have a heat activated sealing compound with the sealing compound fully encapsulating the space between cables. Ensure heat shrink tubing provides a watertight fit around individual cables and outer walls of risers. Do not use cut sections of cable or any other devices instead of filler rods. Use aluminum tape around cables to prevent damage from sealing chemicals. Use a heat source that will provide even heat distribution around tubing. Ensure no damage occurs to any cables.

Bond new risers, a minimum of 10 ft above grade, to the pole ground using a #6 AWG minimum solid bare copper wire and an approved pipe clamp, a split bolt connector or parallel groove clamp. On pole mounted cabinets where the riser are connected to the cabinet, bond risers in the cabinet using ground bushings with a #6 AWG minimum solid bare copper wire to the cabinet ground bus.

If a pole ground exists on the joint use pole, bond new riser to existing pole ground using #6 AWG minimum solid bare copper wire terminated with split bolt connectors or parallel groove clamp.

If existing poles do not have a grounding system, install new grounding system that complies with Article 1720-3 for bonding messenger cable.

Transition from rigid galvanized steel risers to underground PVC conduits using an approved rigid galvanized steel sweeping elbow with PVC female adaptor.

1722-4 MEASUREMENT AND PAYMENT

__" *Riser with* ____ will be measured and paid as the actual number of risers of each type and size furnished, installed and accepted. No measurement will be made of weatherheads, heat shrink tubing or pole attachment fittings as these will be incidental to furnishing and installing risers.

Heat Shrink Tubing Retrofit Kit will be measured and paid as the actual number of heat shrink tubing retrofit kits furnished, installed and accepted.

Payment will be made under:

Pay Item	Pay Unit
__" Riser with ____	Each
Heat Shrink Tubing Retrofit Kit	Each